Six Ponds News

June 2002

An Occasional Publication Of The Six Ponds Improvement Association

# Water Quality Project

We are all aware of the repeated algae blooms at Long Pond last summer. The results of this spring's "Pond turnover water testing shows that the blooms were not an aberation but are due to nutrient overload. Total phosphates are up at all Ponds, and nitrates and sulfates are well above the acceptable threshold in both Long Pond and Little Long Pond. The test results are posted on our website at www.sixponds.org.

Accordingly, your Executive Committee has moved forward vigorously with a water quality program to determine the source(s) of the nutrients and devise a strategy for dealing with this pollution. Six Ponds has received a State grant of $8,000 for water quality testing. With this grant we have purchased our own laboratory analysis device, a Technicon Auto Analyzer. Now we will be able to do many more days of sampling this year and test many more samples per Pond per day of testing. The Technicon equipment will be kept at the Plymouth Wastewater Treatment Facility and will be under the able supervision of Ed Russell and Terry Donoghue who head up the Six Ponds Water Quality Project.

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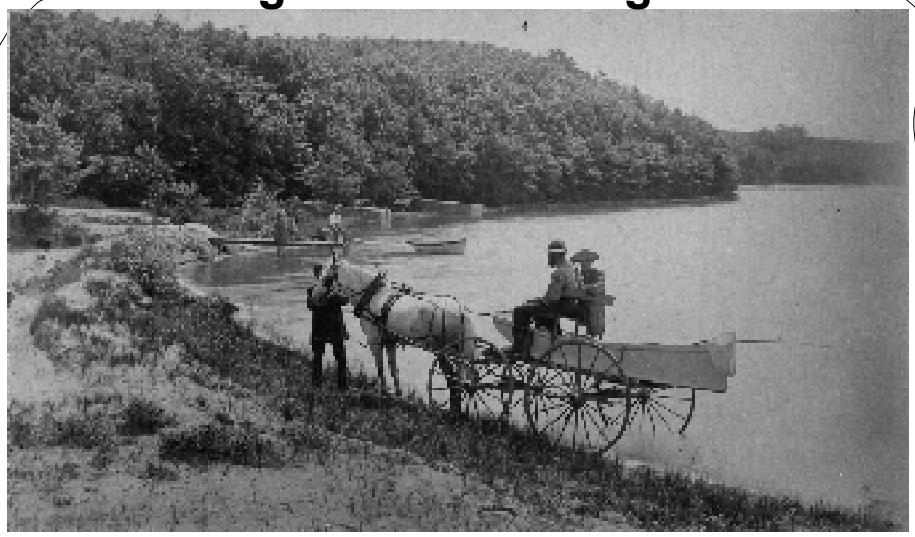
## Summer Pot Luck Supper

Our Annual Meeting and Potluck will be held on Saturday, July 27 at 6:00 pm at Russell's Great Hall off Halfway Pond Road.

Six Ponders with last names from A to P should bring a desert or salad, and those from Q to Z should bring a main dish. Ice water, hot coffee and tea will be provided. Feel free to bring other beverages of your choice.

This should be a glorious event as it is our 50th Anniversary Year! If you have "historical" Six Pond area photos that you would be willing to share, please contact Janette Somerville (508-224-8049) or Peggy Briggs (781-792-3280) about making copies that we could display safely.

## Long Pond Boat Wagon



A turn of the (last) century photo of the "boat wagon" delivering a skiff and thought to be shot from the area of the present-day boat ramp.

Does anyone know what the wooden tunnel structures (going into the pond in the background) might be? E-mail newsletter@sixponds.org with your answer.

## Water Quality (cont.)

Our grant was supported by Town officials, the Coalition for Buzzards Bay and The Nature Conservancy which will benefit directly from our work. The Coalition for Buzzards Bay is interested because Halfway Pond (and thus flow from Long and Little Long) are headwaters of the Agawam River, which is an excess nutrient source to Buzzards Bay

Other good news: George Zoto (the State coordinator of our local watershed) has offered the Town of Plymouth (and Six Ponds) a $7500 handheld water sampling device that can test for many parameters that we require. Additionally, the Plymouth Town Meeting appropriated $50,000 to be used in Pond Water Quality programs, and Six Ponds will be helping Owen Muise, the Town's Director of Parks, to devise a strategy for Pond water quality preservation and restoration.

Ed and Terry are looking for volunteers to help put together the Quality Assurance Project Plan (needed to get more State funds),,to get trained on the use of our new testing equipment (2-3 hours), and to go out on testing day so that all Six Ponds are covered. Access to a flat bottom boat which is easy to transport, but more stable than a canoe, would be helpful at each Pond. Please call Ed Russell at 508-224-2007 if you can help. And Six Ponds members who see what appear to be water quality issues are encouraged to call Terry or Ed.

Also, the Water Quality Committee needs two computers for use in the testing program. If any Six Ponder has a used PC that he or she is willing to donate, please let us know. We need:

1. a PC laptop for the use with the YSI handheld instrument in a boat
2. a PC for the lab with an available expansion slot, modem, etc.

Both must be at least a 386 running Windows 3.14 (Windows 95+ would be better yet) please call Terry at 508-224-1726.

## Dues

Year 2002 dues are now due in the amount of $10 per family.

Please return your payment in the enclosed envelope. Thank you!

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# Makepeace Development

The Conservation Initiative (for the large conservation organizations and the State to purchase substantially all of the Makepeace property) has been suspended because Makepeace did not accept the group's second offer to purchase. We should expect Makepeace now to start to proceed with development plans.

Because of the fragile and unique nature of the lands involved, the permitting process will be long and difficult.

The first parcel likely to be proposed for development is the 60-acre parcel between Halfway Pond Road and Bourne Road. Makepeace can put 19 houses on this parcel, and more if they transfer development rights.

Dorothy Price, whose family used to own some of the Makepeace property, has put Makepeace on notice that there is a Native American site known as "Peaceful Valley located on the 60-acre parcel. Peaceful Valley is identified on old maps and a long ridge or berm can be seen from the air.

Six Pond members have expressed the hope and expectation that a proper study be made of this earthworks to determine its origin and whether or not it has historical significance. This matter will be updated at the Annual meeting on July 27.

## Research Platform at Long Pond

In July the Woods Hole Oceanographic Institute, at its own expense, will be placing a floating research platform on Long Pond to conduct plant growth studies, particularly the various physical and meteorological factors that affect the growth of algae and aquatic weeds.

This will supplement our own nutrient measurements and will give us valuable additional data to assist us in addressing the problem of algae blooms on Long Pond.

## Dirt Bikes in the State Forest

The State's new draft plan includes 20 miles of dirt bike trails including a loop that goes all the way up to Alden Road, the main road into the Forest off Long Pond Road.

The State will soon be looking for comments on the Plan from the public and we will send out an email alert when the time comes to make comments. (If you are interested in e-mail alerts please be sure that Six Ponds has your current email address!)

## Spring 2002 Water Testing and Follow-up

The cold and rain on March 16 didn't stop six Six Ponds water quality volunteers (Peggy Briggs, Joanne & Terry Donoghue, Ed & Charlotte Russell, and David Buckman) from making an early morning excursion to test each of our Six Ponds. Testing is a lot easier and more accurate since the Six Ponds Association purchased a hand held Oakton electronic measurement device for temperature and pH. For consistency, two to three samplers paddled a canoe borrowed from a Pond side resident at each Pond to the same sampling location in the Pond that had been used before. The Oakton probe was then held in the water for several minutes and results registered and recorded, and two sample bottles of water filled and labeled. The plastic bottles obtained from Envirotech must be opened, filled and closed under water (as deep as one's arm can stand the water in March). Samples are kept refrigerated until delivered to Sandwich.

Additional testing with our new equipment may also help identify the source of the specific nutrient problems in our Ponds. Suspects are road run off, septic systems, lawncare runoff, and erosion exacerbated by the cutting of trees and other vegetation on embankments near the shoreline. Once sources are identified we will need to determine a procedure for remedying the problems. For example, Town Meeting allocated monies for Storm Water Management, and we will ask the Town to direct dollars toward keeping road runoff from our fragile Ponds. And the Board of Health may or may not be willing to be involved in septic system issues – it would be easier to handle those issues "among neighbors".

There are many other things we can individually do to help preserve our Pond water quality. For example, there are "green products such as Seventh Generation, Simple Green and Sun & Earth available for washing and cleaning that do not add nutrients to our aquifer and Ponds. Since these products are not always readily available in our stores, Six Ponds could make a large scale purchase and then re-sell the products to members if there were sufficient interest. And lawncare products that contain phosphate and nitrate fertilizers

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# Spring 2002 (cont.)

should be used very sparingly in the Six Ponds area and certainly not in the immediate vicinity of a Pond. Finally, your Executive Committee wishes to remind you that regular pumping of septic systems (i.e., every 2 years), and NOT using additives in the system (because they interfere with the natural biological processes), will help prolong the life of a septic system and keep it functioning in a manner that will not pollute a nearby Pond.

It should be noted that the program Lois Post oversees for coliform testing will continue unchanged from last year. Lois' samples are used to test water for swimming safety, which is a separate issue from the water quality issues discussed above.

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# New Conservation Restriction – Corner of Long Pond Road and Clark Road

The CR for 10 acres at the "old firestation site" at the corner of Long Pond Road and Clark Road has finally been recorded.

This corner is presently something of an eyesore due to increasingly heavy use by vehicles, some of which are parked there all day. The overall feeling of the Executive Committee is that the area should continue to be available as a bus stop and live parking area, but that the expansion that has been taking place needs to be controlled and it should not be a parking area.

Your Executive Committee is looking for suggestions on how to improve this area and make it an attractive "entrance for the Six Ponds area while still serving as a convenient drop-off and pick-up site for carpools.

# Watching Red-Bellies

**(by Cathy Abbott)**

One of the nicest perks of being a teacher is having the summer off. I have had the great fortune of spending the last five summers on Bassett's Cove at Long Pond. And one of my greatest pleasures during these summers has been watching the neighbors. A pair of osprey routinely grabbing fish and flying off over the West Shore, presumably to a nearby nest. The barn swallows who spend all summer gorging on flying insects, nesting in the stone boathouse, and then make their long journey south (one of the longest migrations of all North American songbirds, some traveling as far as the tip of Chile). Of course, I don't know where the Long Pond swallows spend the winter but I do know they leave early (mid-August), long before the catbirds, phoebes, or other migrants. We watched a family of five mink swimming across the Cove on a busy 4th of July weekend. We've enjoyed listening to the screams of Fowler toads on warm June nights and the trills of screech owls when the temperatures begin to drop in August.

But our most famous neighbors are the red-belly turtles. A federally listed endangered species since 1980, the Plymouth red-belly (now officially called the "Northern Red-Bellied Cooter ) survives in a handful of ponds. A long-lived turtle (up to 55 years) it doesn't reach reproductive maturity until about age 8-10, guaranteeing a slow population growth rate. Its numbers were so low in 1983 (about 300 adults) that biologists head-started eight turtles: retrieving eggs from the wild, handraising hatchlings to decrease mortality and then releasing the survivors in suitable habitats such as Little Long Pond. No one anticipated that the red-bellies would swim into and across Long Pond and take up residence in Bassett's Cove. but that is exactly what they did. And they've stayed in Bassett's Cove for at least eight years. I remember 30 years ago my grandfather taking us on boat rides during which we'd see the occasional turtle. Bassett's Cove does seem to be ideal turtle habitat: deep water with a shore that drops off quickly, aquatic vegetation for the herbivorous turtles to eat, and sandy beaches for nesting. Knowing all this, I still can't help but be impressed that this very rare, and traditionally very shy reptile, seems to be thriving in our increasingly busy little cove.

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## Red Bellies (cont.)

One other feature critical for red-belly habitat is a network of basking logs. And herein may be the challenge to their continued existence on Long Pond. Red-bellies and their relatives are predominantly a southern group of turtles. Here in Plymouth they occupy the most northerly boundary of their range. Like other cold-blooded reptiles, red-bellies must bask in the warm sunshine in order to raise their metabolic rate to a desired level. Every time the turtles are forced to abandon their basking site, every time they seek cover by plunging into the cool water, they lose precious energy and the delicate balance of physiological efficiency shifts against them. Less basking time may translate into less energy for overwintering in the mud or less energy for reproduction. And the turtles are losing increasing amounts of basking time each year as more and more boaters approach for a close look. On some busy weekend mornings I've counted up to eight boats coming to view the turtles. Some boats cut to headway speed and keep a respectful distance - binoculars really help here. But the majority drive right up, some literally bumping a log, to get a closer view, often forcing the turtles to plunge into the water. Because they are a federally listed endangered species, the turtles are protected by a hefty fine against all forms of harassment, including any human action that forces a change in the protected species behavior. Yet I've watched anglers cast lures on to the backs of basking turtles and snorkelers try to grab a turtle hiding below the surface. At least three boats this past summer attempted to catch a turtle, not to harm them, just to let the children play with them for awhile. This may be another sad example of what's left of nature literally being loved to death.

I find it testimony to the resilience of this ancient reptile that it can survive on our busy Pond with increasing numbers of homes along the shore, increasing traffic surrounding us, and increasing numbers of people seeking recreation. Perhaps all the more remarkable given the reputation of red-bellies as being especially shy turtles. The Massachusetts Endangered Species Program's fact sheet states "redbelly turtles are shyer than [most] and will not bask for long if they note human presence. Redbelly turtles typically live in remote ponds and will not tolerate human presence. And yet the redbelly has found its way to Long Pond and seems to be doing just that: tolerating human presence.

Our most exciting observation this past summer was finding a tiny hatchling under our dock. The hatchling was about two inches long (born last year) and had light-colored stripes on its head. I can't prove it but I believe it is a baby redbelly turtle, one that was born right here on Long Pond.

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## What is the foam I see on lee shores?

Some residents are concerned that the foam might be the result of human interaction or phosphate accumulation, but it's actually a phenomenon caused by decomposition of naturally occurring organics which reduce the surface tension of water. Water has a naturally high surface tension which can be reduced by these decomposing organics just as the use of laundry detergents reduces surface tension in wash water. On a lee shore waves and wind whip up the water which then foams more easily. You will see this effect also in healthy ponds and rivers where the humic acid from decaying leaves turns the water brown and results in a brown foam.

# Stormwater Runoff

One of the factors influencing Six Pond water quality is stormwater runoff from roads, yards and driveways. Forest and woods act like a large sponge whereas impervious surfaces prevent absorption and carry pollutants such as phosphorus to the ponds. We all have work to do here, changing years of behavior where we've expanded our beaches and made lawns to the pond's edge.

Trees break the velocity of rain, reduce soil erosion and allow moisture to be absorbed into the ground. Smaller trees and woody shrubs minimize erosion by binding the soil with their dense root systems - very important on the edge of ponds. Much of the phosphorus trapped by the natural filtering action of soil particles and forest litter is then taken up by the forest vegetation. As a result, the water that flows to the lake contains relatively little phosphorus.

During a heavy rainstorm last fall, a survey found that water flows to the Ponds from quite a distance north on Long Pond Road. Flowing stormwater starts at the beginning of Clark Road, picking up additional water from driveways along Clark Road as well as parts of Oar and Line and Thatcher Roads, ultimately dumping large quantities into Long Pond at the boat ramp. The boat ramp parking lot also contributes copious amounts of storm runoff. Unfortunately the town's many stormwater catch basins in Plymouth Estates shunt water directly to the Ponds (where modern system design shunts water to holding tanks). Six Ponds will work with the Town to see what can be done to mitigate the catch basin problem.

# More on Algal Blooms

Last summer's blooms on Long Pond were one of a class of algae called "blue-greens. They are a common form of phytoplankton that goes unnoticed most of the time but, just like garden plants, they respond heartily to nitrogen and phosphorous nutrients and can explode overnight. Algae are excellent biological indicators of water quality. Eutrophication (nutrient enrichment) is recognized as a critical factor in algae blooms and effective management of nutrients is a key to bloom prevention and the health of our ponds going forward.

Was our bloom dangerous? Most of the time, blue-green blooms are a nuisance but are not dangerous. However, some types of blue-greens produce toxins as they die. Our state watershed person, George Zoto, sampled the bloom last summer and unfortunately found it was mostly Anabeana, one of the algae types which produces an alkaloid nerve toxin, which can cause muscular and respiratory disorders. Anabeana and other toxic blue-greens are generally not fatal to people but those who swim through a bloom and swallow significant amounts of water can develop skin rashes, gastrointestinal disorders and heart problems. Two years ago on a Cape Cod pond, two dogs died from drinking pond water during a bloom. While the taste of a non-toxic algae bloom is simply unpleasant, the health effects of long-term exposure to blue-green toxins are not known. The scum from the dying algae is more toxic than the algae itself.

Pond Plant Growth. Six Ponds was represented at the COLAP (Congress of Lakes and Ponds Associations) meeting in Worcester in January. At the meeting it was apparent that excessive growth of water plants is a serious and growing problem throughout the state. We have been fortunate not to be plagued by these plants but some Long Pond residents say they notice an increase in bottom growing plants including a green or gluey growth on the bottom. We took samples of the various bottom growths at Long Pond and delivered them to the state lab in Lakeville; fortunately none of them turned out to be a type of dangerous vegetation that takes over a pond. Bottom plants will however continue to proliferate as nutrient content in the pond increases. Since they are encouraged by increased nutrients, we must expect them if our nutrient loads increase, and the first places that we would see these unwelcome invaders are in the shallower waters.

What should be done? Mass DEP says "By the time pollution effects are obvious, a lake can be difficult or impossible to restore . Six Ponds must act to preserve what we've got – we will not be able to get back to the pristine conditions of years ago. Our testing is being expanded and we are working to identify and eliminate causes of nutrient contributions to the ponds. This also means education of all residents in the Six Ponds area whether they live on a Pond or not.